Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

Title V draft permit No. V-02-017
QUEBECOR WORLD FRANKLIN
FRANKLIN KY
May 29, 2002
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Plant I.D. #21-213-00022
Application Log # 50248 (F444)

SOURCE DESCRIPTION:

Quebecor World Franklin is an existing publication rotogravure printing plant that prints magazines, catalogs, flyers, and newspaper inserts. The source is classified as a Title V major source due to VOC and HAP (mostly Toluene) emissions and has major potential emissions for SO_2. In addition to Title V major source status, each of the presses at the source is a major source or major modification under 401 KAR 51:017, Prevention of Significant Deterioration (PSD).

Currently, printing is performed on five large publication rotogravure presses and a sixth publication rotogravure is to be added. Two of the presses (presses 1 and 4) have an in-line flexographic imprinter. The presses are controlled by a common carbon adsorption system/solvent recovery system.

In addition to the presses and the control device, the source currently has three natural gas fired boilers with #2 fuel oil as backup, two fuel oil tanks used to hold the backup fuel supplying the boilers, two double cell cooling towers, an ink and solvent tank farm, a deaerator, a parts washer, a cylinder cleaning area, a proof press, a drum proofer, a distillation unit, two chrome plating lines controlled by composite mesh-pads for plating print cylinders, three balers controlled by process cyclones, six hand correction stations, a wastewater treatment area, ink jet printers, two hot melt gluing operations, two diesel fired emergency generators, an emergency fire pump that is diesel fired, two diesel fuel tanks for the emergency equipment, an imaging facility located in a separate building on the same property, and associated equipment with minimal emissions. Additionally, the source has applied to construct/operated a fourth boiler and some additional tanks.

Press 6 and the associated equipment and modifications will be a major modification under PSD rules. See the PSD Preliminary Determination in this package for further information concerning the new construction and the BACT limits drafted. In the draft permit, press 6 is also noted as EP42, boiler #4 is noted as EP22, and the new ink, solvent, and varnish tanks are noted in EP25 or EP29.

Because of the new construction, the Title V permit is being redrafted as a construction / operation permit. The new draft will not be reference as permit V-99-030, as before. Instead it will be draft permit V-02-017. The new draft will have all existing and proposed facilities that Quebecor has identified to date. Furthermore, some subtle and not so subtle changes are being proposed. The intent of many of the changes is to make the permit easier to understand. However, other changes will be substantive changes to previous limitations established as part of PSD.

SOURCE DESCRIPTION (CONTINUED):

Other than the proposed press and associated equipment, the following describes the PSD related changes and some other changes to be realized.

Emission point numbering is to be simplified and adjusted as closely as possible to an addendum submitted as part of the source's Title V application. The descriptions on the left are from permits O-88-080, C-90-166, and F-94-014 (Revised).

01(01) Indirect heat exchanger #1	will be described as	EP01	Boiler #1.
03(03) Rotogravure Printing Press #1	will be described as	EP02	Press #1.
04(04) Electroplating line #1	will be described as	EP13	...
05(06) Rotogravure Printing Press #2	will be described as	EP03	Press #2.
07(06) Rotogravure Printing Press #3	will be described as	EP04	Press #3.
10(07) Indirect heat exchanger #3	will be described as	EP05	Boiler #2.
20(15) Electroplating line #2	will be described as	EP16	...
21(06) Proof Press	will be described as	EP18	Proof Press.
23(-) Distillation unit	will be described under	EP41.	
12(08) Rotogravure Printing Press #7(4)	will be described as	EP06	Press #4.
24(16) Indirect heat exchanger #4	will be described as	EP23	Boiler #3.
37(-) Rotogravure Printing Press #5	will be described as	EP39	Press #5.

Particulate matter and SO_2 limits on the boilers have been corrected or changed to values that match the requirement of the regulation under current conditions because the limits can be shown to be erroneous and/or extremely improbable.

Conditions for precluding SO_2 BACT limits on the boilers have been more clearly defined or defined alternatively at an emission quantity that is still below the significant level because the previous limits were weakly (if at all) described in the relevant permits and/or not necessarily representative of the intended emission limit.

Short-term hourly BACT or LAER limits on press 1, 2, and 3 have been removed because the limits are extraneous. The limits are extraneous because permit O-88-080 describes two short-term limits on each of these presses. One of the short-term limits is a control requirement. The extraneous other short-term limit is a maximum hourly VOC input rate. The control requirements were intended, can be verified at times other than during a test, and are essentially in the same format as the more recent short-term BACT limits applied at the source. The extraneous other short-term limits represent a potentially flawed maximum application capacity for the presses that over short periods does not describe an emission rate, can not reasonably be determined each hour, would presently require a month long average (or similar) to verify, and are not part of more recent similar BACT requirements at the source. Considering the described factors, the hourly BACT and LAER limits do not belong in the Title V permit.

Terms and conditions have been added for practical enforceability.

Many terms and conditions have been clarified and described in greater detail.

SOURCE DESCRIPTION (CONTINUED):

New applicable regulations have been added.

Limitations without basis have been removed.

The 75% control requirement on the proof press has the basis of the limit clearly described.

In addition to the above-described changes, the Quebecor Imaging Plant was combined with Quebecor World Franklin because it is located on the same property and has the same owner. The imaging plant was identified by the division as source # 21-213-00038 and was operating under permit O-91-016.

Quebecor World Franklin was previously known as Brown Printing and has existed since the late 1970's. Due to the long history of the facility, this review has been heavily influenced by division personnel involved in previous permitting and some air regulation compliance personnel from the source. When historical documents were unclear, reasonable assumptions were utilized.

COMMENTS:

Type of control and efficiency

The presses (including the proof press and drum proofer) and the part washer are vented to a carbon adsorption system. Capture efficiency varies from presses that are to be demonstrated to be 100% captured to assumed capture efficiencies as low as 75%. Control across the adsorber is around 98%. Even when printing is done in a permanent total enclosure, overall control is assumed to be less than 98% since AP-42 and the source describe a 2 to 3% volatile matter retention in the paper until the paper is well off of the press. Overall source control efficiency is demonstrated through liquid-liquid material balance. Overall control efficiency for Presses 1, 2, and 3 has been demonstrated to be in excess of 90%, by weight. Overall control efficiency for Presses 4 and 5 has been demonstrated to be in excess of 96%, by weight, however, to date Presses 4 and 5 have not been demonstrated to be within permanent total enclosures. The high capture efficiency achieved on Presses 4 and 5 demonstrates good enclosure but not total enclosure. Capture efficiency on Presses 4 and 5 is still to be demonstrated as described in the Title V permit. Additionally, because of the source's method of demonstrating capture efficiency, it is difficult to determine where the emissions are actually occurring. Tank emissions are virtually indistinguishable from emissions at the applicators and so on.

The chrome plate tanks are each controlled by mist eliminators and composite mesh-pad control systems. Capture of chrome and particulate matter is assumed to be 100%. Control has been demonstrated to reduce emissions below 0.015mg/dscm (during testing emissions were demonstrated below 0.0025 mg/dscm). The source estimated control at 99.9% but the division would like a safety factor and has assumed control to be 99.5%. The control efficiency utilized will not affect compliance with the standard because current applied should not appreciable change (i.e. emissions per volume of air exhausted have been assumed to always be equivalent to the initial demonstration). Continued demonstration of control is through pressure monitoring. If current applied is appreciable changed, testing may be warranted.

The 3 bailers at the source are controlled by filtered process cyclones. Control efficiency has been assumed to be 99%.

COMMENTS:

Emission factors and their source

Chromium and particulate matter emissions from the chrome plate tanks have been assumed to be 0.5% of the chromium salts utilized in the tanks based on a back calculation from emission data supplied in the source's application and assumed maximum application rates derived using a 1 micron/hr plating rate (assuming 99.5% control).

Due to the nature of the bailer particulate emissions and the control, particulate emissions have been assumed to be negligible under normal circumstances.

VOC and HAP emissions from the presses are based on liquid-liquid material balance assuming that all VOC/HAP used is emitted. As indicated above, 2 to 3% of the VOC/HAP used is assumed to remain in the paper while on the presses and emitted later.

Emissions from the boilers, emergency generators, and fire pump engine were calculated using natural gas and #2 fuel oil and data in AP-42 Chapters 1.3 and 1.4.

Based on the vapor pressure of diesel fuel, tanks containing the fuel have been assumed to have negligible VOC emissions.

Particulate emissions from the cooling towers are assumed to be negligible based on permit review staff observations of the units.

Except for the chrome plating tanks, emissions from the other plating tanks have been assumed to be negligible based on the nature of the processes.

Potential emissions from the ink, varnish, and solvent tanks at the source were estimated based on modeling using Tanks 3.1 and Tanks 4.0. Actual emissions are included with the press emissions since there is no easy way to determine if losses are from working, breathing, or application.

All VOC/HAPs consumed during cylinder hand correction, parts washing, and cylinder cleaning are assumed to be emitted.

All VOC/HAPs consumed with ink jet printing are assumed to be emitted.

VOCs contained in hot melt consumed are assumed to be emitted.

Emissions from the deaerator, piping equipment, and air stripper have already been counted in the press emissions. Except for the piping equipment, VOC/HAP emissions from these units are presumed to be mostly out of the decant water.

Applicable regulations

Since all of the presses at the source have either BACT or LAER requirements on the VOC emissions, it is obvious that 401 KAR 51:017, Prevention of significant deterioration, is applicable at the source. Earlier versions of 401 KAR 51:017 or PSD were the mechanism for the BACT and LAER limits. Additionally, back in the early 1980's, Simpson county was unclassified for ozone attainment and 401 KAR 51:050 was assumed to apply and resulted in LAER requirements. Press 6 will be a major modification under PSD and will therefore be subject to PSD requirements (including BACT). See the PSD Preliminary

Determination in this package for details of the 401 KAR 51:017 requirements and analysis for Press 6. The PSD analysis for each of the other PSD construction projects at the source is not contained in this package (those documents were available for public comment at the time of construction).

All boilers have limits on yearly SO_2 emissions from combustion of fuel oil to preclude BACT reviews for the pollutant when PSD was applicable or to preclude PSD applicability when not constructed as part of a major PSD source or modification.

All of the boilers, except the small (< 1 MM Btu/hr) boiler at the imaging facility, are subject to 401 KAR 59:015, New indirect heat exchangers.

Only boilers 3 and 4 are subject to 40 CFR 60 Subpart Dc, Standards of performance for small industrial-commercial-institutional steam generating units, which is incorporated by reference in 401 KAR 60:005, due to construction dates or size.

Presses 3, 4, 5, and 6 are subject to the 40 CFR 60 Subpart QQ, Standards of performance for the graphic arts industry: publication rotogravure printing, which is incorporated by reference in 401 KAR 60:005. Presses 1 and 2 are not subject to 40 CFR 60 Subpart QQ because Press 1 was built before the applicability date of this regulation and Press 2 was considered to be commenced prior to the applicability date due to a contract to install. In addition the proof presses are exempt from 40 CFR 60 Subpart QQ in accordance with the applicability of the regulation.

40 CFR 63 Subpart KK, National emission standard for the printing and publishing industry, which is incorporated by reference in 401 KAR 63:002, is applicable. It includes the presses, proof press, drum proofer, cleaning, parts washer, storage tanks, 6 hand correction stations, cylinder cleaning, the carbon adsorption system, and associated other emissions. The required overall effective organic HAP control efficiency for the source is required to be at least 92%. Because 40 CFR 63 Subpart KK applies to the presses and associated activities, 401 KAR 63:020, Potentially hazardous matter or toxic substances, is not applicable.

Since Press 1 and Press 4 have one in-line flexographic imprinter, flexographic printing regulations have been explored for applicability. First, the imprinter on Press 1 is not subject to 401 KAR 61:122, Existing graphic arts facilities using rotogravure and flexography, because Quebecor is not in a non-attainment area and 401 KAR 59:212, New graphic arts facilities using rotogravure and flexography, is not applicable due to the construction date. Second, the imprinter on Press 4 is not subject to 401 KAR 61:122 due to the construction date and 401 KAR 59:212 is not applicable due to the definition of printing in the regulation.

The parts washer is considered to be existing due to the construction date and is not subject to 401 KAR 61:095, Existing solvent metal cleaning equipment, because it is not in a non-attainment area.

The 12,000 gal solvent storage tanks and the 30,000 gallon fuel oil tanks at the source are subject to 40 CFR 60 Subpart Kb, Standards of performance for volatile organic liquid storage vessels (including petroleum liquid storage vessels) for which construction, reconstruction, or modification commenced after July 23, 1984, which is incorporated by reference in 401 KAR 60:005. Except as noted under 40 CFR 63 Subpart KK applicability, no other regulations are applicable to the tanks at the source.

COMMENTS:

Applicable regulations

Since Quebecor uses only heat exchanger city water in the two double cell cooling towers and does not treat the water with chromium based chemicals, printing regulations and 40 CFR 63 Subpart Q, National emission standards for hazardous air pollutants for industrial process cooling towers, are not applicable to the cooling towers. However, 401 KAR 63:010, Fugitive emissions, does apply to the particulate emissions from the cooling towers.

The two hot melt glue operations, the boiler feedwater deaerater, and the waste treatment facilities are not subject to any regulations.

The balers and imaging plant are subject to only 401 KAR 59:010, New process operations.

The emergency generators and fire pump are not subject to any regulations but they are limited to 500 hours of operation/yr to be defined as emergency units.

Ink jet printing at the source is not subject to any printing regulations. However, throughput data must be recorded as part of 401 KAR 50:038, Air emissions fee, applicability.

All the plating operations are subject to 401 KAR 59:010, New process operations. Additionally, the two chrome plating tanks are subject to 40 CFR 63 Subpart N, National emission standards for chromium emissions from hard and decorative chromium electroplating and chromium anodizing tanks, which is incorporated by reference in 401 KAR 63:002.

Finally, 40 CFR 64, Compliance Assurance Monitoring (CAM), was looked at for Press 6. Applicability to VOC emissions from the press was not clearly determined, however, the rule was assumed to apply and requirements will not differ from the monitoring resulting from 40 CFR 63 Subpart KK applicability. The rest of the presses at the source will be subject to requirements of CAM upon renewal of the Title V permit.

PERIODIC MONITORING:

Natural gas combustion at the source is extremely unlikely to violate mass and opacity standards. Therefore, monitoring will not be required for natural gas combustion. Daily records for fuel consumption are required by 40 CFR 60 Subpart Dc on some of the boilers (they are identified in the permit).

Combustion of #2 fuel oil is also not likely to violate mass and opacity standards since sulfur content is limited to a maximum of 0.5% (by weight). Because of the nature of #2 fuel oil combustion, the only monitoring required is a Method 9 test once a year (if the fuel is utilized beyond test firing) and records of sulfur content. This degree of monitoring is believed to be sufficient to demonstrate compliance with applicable mass and opacity standards. Additionally, daily records for fuel consumption are required by 40 CFR 60 Subpart Dc on some of the boilers (they are identified in the permit) and since all the boilers at the source, except the one in the imaging plant, are subject to synthetic minor limits on sulfur emissions, all the boilers must have #2 fuel oil consumption recorded for each month (in addition to the sulfur content of the fuel).

PERIODIC MONITORING (CONTINUED):

The presses at the source are demonstrating compliance with applicable limits (except permanent total enclosure requirements) through a liquid-liquid material balance. This method of monitoring is equivalent to CAM. Therefore, except for the identified permanent total enclosure testing, monitoring will only consist of monthly measurements for materials consumed and solvent recovered. To determine the solvent recovered, a monitoring device accurate within ± 2.0% will be used to measure solvent recovery.

Presses 4, 5, and 6 are required to be inside permanent total enclosures. To demonstrate compliance, a one time (unless otherwise requested by the division) Method 204 test is required on each of the presses. Subsequent compliance is assumed based on compliance with liquid-liquid material balance requirements and monitoring.

For the tanks that are subject to 40 CFR 60 Subpart Kb, compliance is demonstrated through records of the dimensions and capacity of the storage tanks kept for the life of the tanks.

There are no monitoring requirements on ink jet printing and the storage tanks with capacity below 10,000 gallons since there are no applicable regulations.

The chrome plating tanks at the source are subject to MACT monitoring provisions. The applicable monitoring is designed to continuously demonstrate that the applicable regulations are complied with and are described in the Title V permit.

EMISSIONS AND OPERATING CAPS DESCRIPTION:

Most of the emission and operating caps contained in the Title V permit are described sufficiently in the permit, however, some additional information for the presses and the proposed construction is warranted and follows.

PSD short-term limits (control efficiency requirements) on the presses are equivalent to the requirements found in permits O-88-080 and F-94-014 (Revised). However, due to the common control system on the presses, compliance is to be demonstrated based on a weighted average of the limitations.

PSD long-term limits (VOC emissions per year) on the presses are equivalent to the requirements found in permits O-88-080 and F-94-014 (Revised). However, due to the common control system on the presses, it will be extremely difficult to demonstrate compliance with the long-term limits unless control efficiency can be assumed as described in the permit. If control efficiency cannot be assumed, there is no practical way to demonstrate overall control efficiency on each press. Due to the different capture setups, the average will undoubtedly be high for Presses 1, 2, and 3 and low for Presses 4, 5, and 6.

Control requirements due to regulation applicability have been combined. Instead of citing control requirements from 40 CFR 60 Subpart QQ, 40 CFR 63 Subpart KK, and PSD, only one requirement demonstrating compliance with all regulatory requirements has been included in the Title V permit. Because of all the combined requirements, control efficiency will be required to be 92% or higher (depending on utilization of Presses 4, 5, and 6) each month.

EMISSIONS AND OPERATING CAPS DESCRIPTION (CONTINUED):

See the PSD Preliminary Determination for details of the BACT determination for Press 6 and associated construction. The BACT determinations for all the other presses are on file at the Division for Air Quality.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or record keeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.